

IN THE CLAIMS:

Please cancel claims . Please add claims 53 - 56. Please amend claims 29, 34, 39 - 41, 46, and 51 - 52. Please cancel claims 30 - 33, 36 - 38, 42 - 45, and 47 - 50.

Claims 1 - 28 (cancelled).

29. (currently amended) ~~A method of calibrating a computer vision system to track a selected object through a series of frames of data, comprising~~ The method of claim 53, wherein determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges includes:

~~displaying an image frame from an image input device, said image frame including a calibration rectangle;~~

~~converting the image frame from red-green-blue pixel information to a hue saturation value (HSV) array of pixels;~~

~~thresholding the HSV array of pixels to create a thresholded HSV array of pixels;~~

~~establishing an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels;~~

~~determining a mean saturation of the initial test HSV array of pixels;~~

~~determining if the mean saturation of the initial test HSV array of pixels falls within a first predetermined range;~~

~~determining if a standard deviation of saturation of the initial test HSV array of pixels is less than a first predetermined amount if the mean saturation of initial test HSV array of pixels falls within the first predetermined range;~~

~~determining a mean hue of the initial test HSV array of pixels if the standard deviation of the saturation of the initial test HSV array of pixels is less than the first~~

predetermined amount, and

determining a standard deviation of hue of the initial test HSV array of pixels if the mean hue of the initial HSV array of pixels falls within a second predetermined range.

Claims 30 - 33 (cancelled).

34. (currently amended) The method of claim 29, ~~further including determining if a sum of the standard deviation of hue and the standard deviation of saturation of the initial test HSV array of pixels is less than a sum of a standard deviation of hue and a standard deviation of saturation for current pixel data stored in a memory wherein the storing of each test HSV array of pixels for succeeding test windows to create the combined test HSV array of pixels occurs~~ if a sum of the standard deviation of the hue and the standard deviation of each of the test HSV array of pixels for succeeding test windows is less than a sum of a standard deviation of hue and a standard deviation of saturation for the HSV pixel data currently stored in memory.

Claims 35 - 38 (cancelled).

39. (currently amended) The method of claim ~~[[38]]~~ 53, ~~further including wherein determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation~~ includes determining if a standard deviation of hue for the combined ~~pixel data~~ test HSV array of pixels is less than a third predetermined amount.

40. (new) The method of claim 39, wherein determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation further ~~including~~ includes determining if a standard deviation of saturation of the

combined ~~pixel data~~ test HSV array of pixels is less than a fourth predetermined amount, if the combined standard deviation of the hue for the combined pixel data is less than a the third predetermined amount[[,]] and

~~creating a pixel classification map if the standard deviation of saturation of the combined pixel data is less than the fourth predetermined amount.~~

41. (currently amended) A machine-readable medium of claim 55 having recorded thereon instructions, such that when said instructions are executed, said instructions cause [[a]] the computer to determine whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges by:

~~display an image frame from an image input device, said image frame including a calibration rectangle;~~

~~convert the image frame from red-green-blue pixel information to a hue saturation value (HSV) array of pixels;~~

~~threshold the HSV array of pixels to create a thresholded HSV array of pixels;~~

~~establish an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels;~~

~~determine determining a mean saturation of the initial test HSV array of pixels;~~

~~determine determining if the mean saturation of the initial test HSV array of pixels falls within a first predetermined range;~~

~~determine determining if a standard deviation of saturation of the initial test HSV array of pixels is less than a first predetermined amount if the mean saturation of initial test HSV array of pixels falls within the first predetermined range;~~

~~determine determining a mean hue of the initial test HSV array of pixels if the~~

standard deviation of the saturation of the initial test HSV array of pixels is less than the first predetermined amount, and

~~determine~~ determining a standard deviation of hue of the initial test HSV array of pixels if the mean hue of the initial HSV array of pixels falls within a second predetermined range.

Claims 42 - 45 (cancelled).

46. (currently amended) The ~~method~~ machine-readable medium of claim 41, including instructions, which when executed, cause the computer to store each test HSV array of pixels for succeeding test window to create the combined test HSV array of pixels occurs ~~determine~~ if a sum of the standard deviation of hue and the standard deviation of saturation of the initial test HSV array of pixels is less than a sum of a standard deviation of hue and a standard deviation of saturation for current pixel data stored in a memory.

Claims 47 - 50 (cancelled).

51. (currently amended) The ~~[[method]]~~ machine-readable medium of claim ~~[[50]]~~ 55, including instructions, which when executed, cause the computer to determine whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation by ~~determine~~ determining if a standard deviation of hue for the combined pixel data is less than a third predetermined amount.

52. (currently amended) The ~~[[method]]~~ machine-readable medium of claim 51, including instructions, which when executed, cause the computer to determine whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation by ~~determine~~ determining if a standard deviation of saturation of the

combined pixel data is less than a fourth predetermined amount, if the combined standard deviation of the hue for the combined pixel data is less than a the third predetermined amount, and

~~create a pixel classification map if the standard deviation of saturation of the combined pixel data is less than the fourth predetermined amount.~~

53. (new) A method to calibrate a tracking system to determine if an image frame has an established number of test windows that meet hue, saturation, and value amounts or ranges, and then to track an object within the image frame, comprising:

converting the image frame from red-green-blue pixel information to a hue-saturation-value (HSV) array of pixels;

thresholding the HSV array of pixels to create a thresholded HSV array of pixels;

setting the established number of test windows needed within the image frame for the calibration to be successful;

establishing an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels;

(a) determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system;

(b) storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges;

(c) decrementing the established number of test windows;

repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a

combined test HSV array of pixels; and

determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation; and creating a pixel classification map for the image frame if the combined test HSV array or pixels has acceptable values and ranges for hue and saturation.

54. (new) The method according to claim 53, further including applying a pixel classification map to the image frame to create a binary image of the image frame and tracking an object utilizing the binary image of the image frame.

55. (new) A machine-readable medium having recorded thereon instructions, such that when said instructions are executed, said instructions cause a computer to calibrate a tracking system to determine if an image frame has an established number of test windows that meet hue, saturation, and value amounts or ranges, and then to track an object within the image frame, by:

converting the image frame from red-green-blue pixel information to a hue-saturation-value (HSV) array of pixels;

thresholding the HSV array of pixels to create a thresholded HSV array of pixels;

setting the established number of test windows needed within the image frame for the calibration to be successful;

establishing an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels;

(a) determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system;

(b) storing the initial test HSV array of pixels in a memory if the initial test HSV

array of pixels has the acceptable hue, saturation, and value amounts and ranges;

(c) decrementing the established number of test windows;

repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels; and

determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation; and creating a pixel classification map for the image frame if the combined test HSV array or pixels has acceptable values and ranges for hue and saturation.

56. (new) The machine readable medium of claim 55 having instructions, which when executed, to cause the computer to applying a pixel classification map to the image frame to create a binary image of the image frame and tracking an object utilizing the binary image of the image frame.